ORDER NO. GAD8512552C1
A1

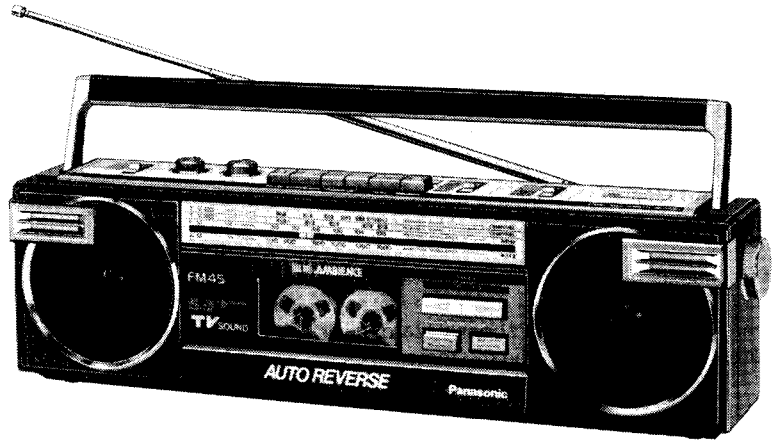
# Service Manual

Radio Cassette

## RX-FM45

(Black)

Stereo Radio Cassette Recorder




This is the Service Manual for the following areas.

M ···For U.S.A.

### RX-FM45 MECHANISM SERIES

### ■ SPECIFICATIONS

**General:**

| | |
|---|---|
| Power Requirement: | AC; 120V, 60Hz<br>Battery; 9V (Six "D" Size Flashlight Batteries)<br>(Panasonic UM-1 or equivalent) |
| Power Consumption: | 12W (AC only) |
| Power Output: | 8W (4W×2)...(max.) |
| Speaker: | Woofer; 4" (10cm)×2 PM Dynamic Speaker (3Ω)<br>Tweeter; 3/4" (1.5cm)×2 Ceramic Speaker (200Ω) |
| Output: | Headphones; 32Ω, M3 |
| Dimensions: | $18^{1}/_{8}$"(W)×$5^{5}/_{16}$"(H)×$4^{13}/_{16}$"(D)<br>(461×136×123mm) |
| Weight: | 5 lbs 15.2 oz (2.7kg) without batteries |

**Radio Section:**

| | |
|---|---|
| Radio Frequency Range: | TV HIGH; 179.75~215.75MHz<br>7~13 channel<br>TV LOW; 59.75~87.75MHz<br>2~6 channel<br>FM; 88~108MHz<br>AM; 525~1610kHz |
| Intermediate Frequency: | FM (TVH/TVL/FM); 10.7MHz<br>AM; 455kHz |
| Sensitivity: | TV HIGH; 3.2μV/50mW output<br>TV LOW; 2.8μV/50mW output<br>FM; 2.8μV/50mW output<br>AM; 140μV/m/50mW output |

**Tape Deck Section:**

| | |
|---|---|
| Frequency Response: | 100~8,000Hz |
| Recording System: | DC bias, Magnet erase |
| Tape Speed: | 4.8cm/s |
| Track System: | 4-track 2 channel stereo recording and playback |

Weights and dimensions shown are approximate.
Design and specifications are subject to change without notice.

Panasonic®

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# SAFETY PRECAUTIONS (For U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, sheilds, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

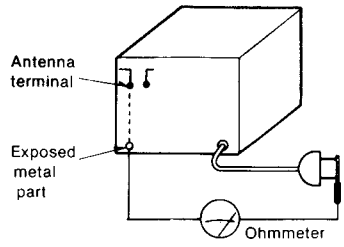



Fig. 1

Resistance = 3MΩ—5.2MΩ

# INSULATION RESISTANCE TEST (For U.S.A.)

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts*. (Fig. 1) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. 2)
   * **Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

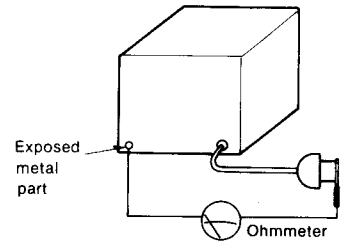
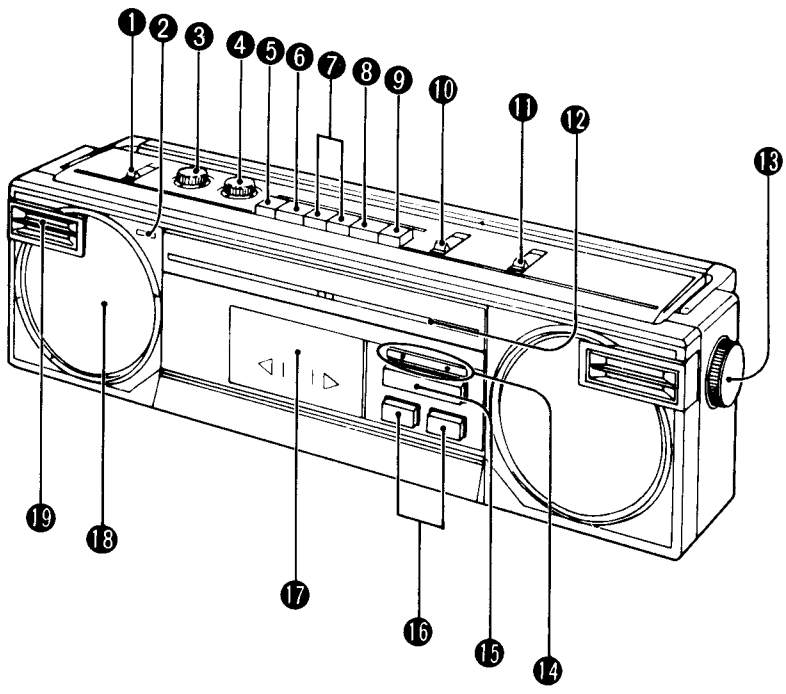
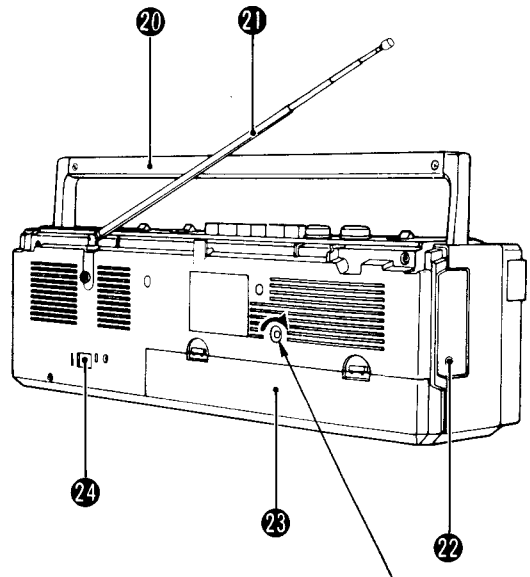



Fig. 2

Resistance = Approx ∞

# LOCATION OF CONTROLS AND COMPONENTS




When the tape is caught in the pinch roller, etc. release the tape by tuning the pulley on the motor with the screwdriver in the direction of the arrow.

## BATTERY SERVICE LIFE

**UM-1 (D-size) Batteries**
**Approx. 18 hours of recording (EIAJ)**
**Approx. 9 hours of playback (EIAJ) with volume set at "6~7" position.**

**The above battery service life is measured according to the conditions set forth by EIAJ (Electronic Industries Association of Japan). As the battery service life varies with the method of operation and environmental conditions, use these values as reference.**

❶ **Function Selector (SELECTOR)**
❷ **Built-in Microphone (MIC)**
❸ **Tone Control (TONE)**
❹ **Volume Control (VOLUME)**
❺ **Pause Button (❚❚PAUSE)**
❻ **Stop/Eject Button (⏏ STOP/EJECT)**
❼ **Fast/Cue Buttons (◀◀ · ▶▶ FAST/CUE)**
❽ **Playback Button (◀ PLAY)**
❾ **Record Button ( • RECORD )**
❿ **Mode Selector (MODE)**
⓫ **Band Selector (BAND)**
⓬ **FM Stereo Indicator (FM STEREO)**
⓭ **Tuning Control (TUNING)**
⓮ **Direction/Power/Battery Check Indicators (DIRECTION/POWER/BATT)**
⓯ **Direction Button (DIRECTION)**
⓰ **Reverse Mode Selector (REVERSE MODE)**
⓱ **Cassette Compartment**
⓲ **Speakers (Woofer) [4″ (10cm), 3Ω]**
⓳ **Speakers (Tweeter) [$^3/_4$″ (1.5cm), 200Ω]**
⓴ **Handle**
㉑ **Telescopic Antenna**
㉒ **Headphones Jack (PHONES) [M3, 32Ω]**

When using the headphones, avoid listening to sound for a long period of time and avoid excessive volume levels, which may injure your ears. (Optional headphones; EAH-S10)

㉓ **Battery Compartment**
㉔ **AC Socket (AC IN∿)**

# OPERATING INSTRUCTION

## RADIO/TV SOUND

1. Set the Function Selector to "RADIO".
   • The Direction/Power/Battery Check Indicator will light up.
2. Set the Band Selector to the desired band; TV(HIGH), TV(LOW), FM or AM.
   • When listening to the TV sounds, set to "TV(HIGH)" or "TV(LOW)".
   In "TV(HIGH)" position, 7–13 channels will be received.
   In "TV(LOW)" position, 2–6 channels will be received.
3. Tune in your favorite station using the Tuning Control.
4. Set the Mode Selector to "AMBIENCE", "STEREO" or "FM MONO" when receiving FM stereo broadcast.
5. Adjust the Volume and Tone Controls.
6. The radio can be turned off by setting the Function Selector to "POWER OFF/TAPE".

**Notes:**
- TV sounds are received only in monaural.
- When tuning to a TV station, if a TV set is near this set, its screen may be affected. This will not damage the TV set however try to use this set away from the TV set as much as possible.
- To receive FM stereo broadcasts, set the Mode Selector to "AMBIENCE" or "STEREO".
  The FM Stereo Indicator will light during stereo broadcasts.
- If FM stereo reception is poor (excessive noise, FM Stereo Indicator flickers), set the Mode Selector to "FM MONO". This will reduce the noise and provide clear reception; however, the broadcast will not be heard in stereo.

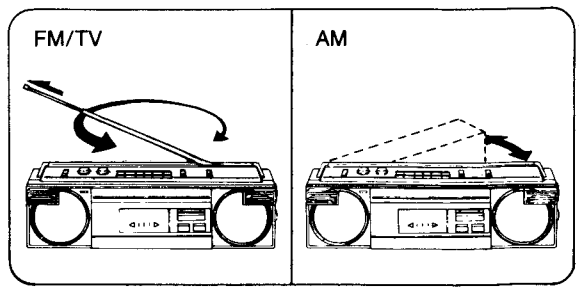
### ■ Ambience

The Ambience Sound System enhances the sound from a normal stereo sound source.
This unit increases the stereo imaging, thereby broadening the listening area of the stereo sound. Therefore, you can enjoy the stereo sound as if you were in a concert hall.

### ■ Antennas

**FM/TV:**
- Pull out the Telescopic Antenna and adjust its length and angle for optimum reception.

**AM:**
- The sensitive ferrite core antenna inside the set will provide excellent AM reception in most areas. For optimum reception, turn the set in the direction which gives the best results, since the ferrite core antenna is directional.



# DISASSEMBLY INSTRUCTIONS

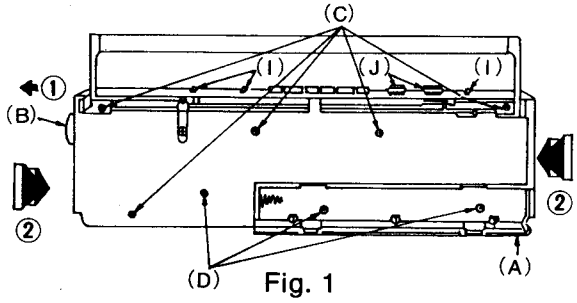


Fig. 1

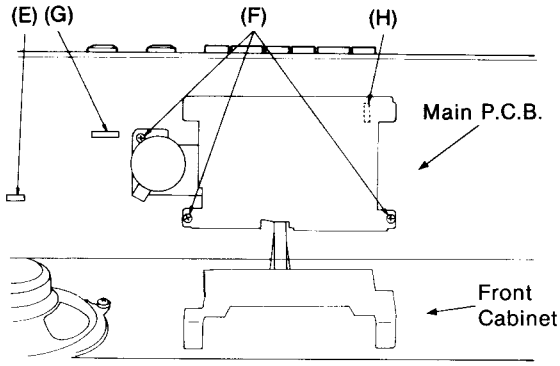


Fig. 2

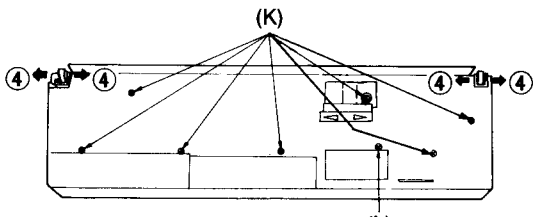


Fig. 3

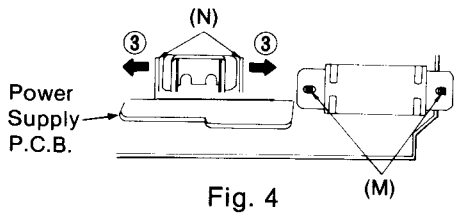


Fig. 4

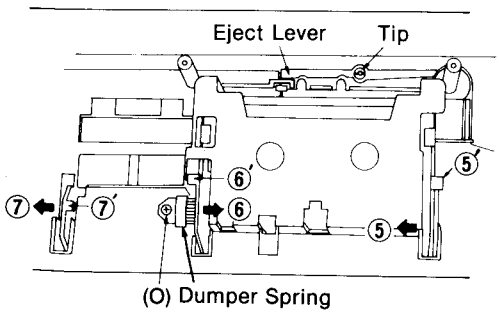


Fig. 5

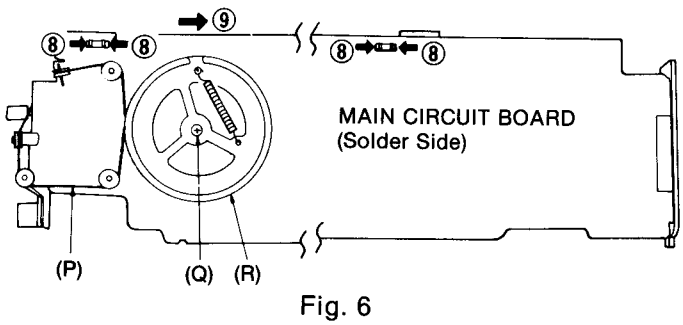


Fig. 6

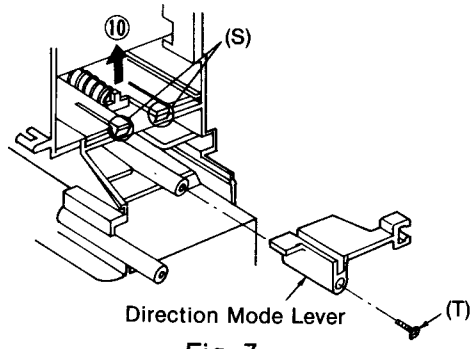


Fig. 7

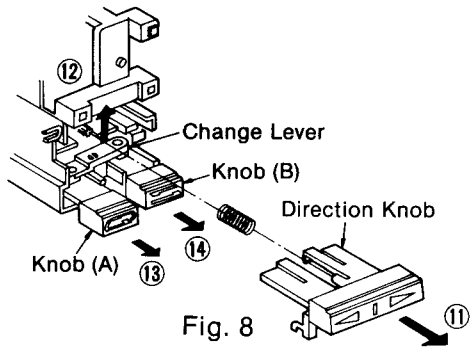


Fig. 8

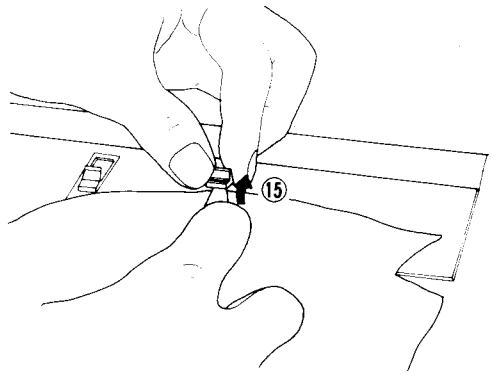


Fig. 9

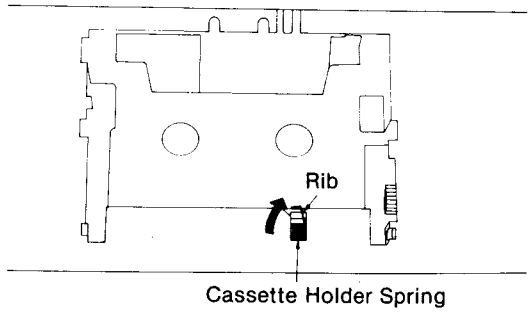


Fig. 10

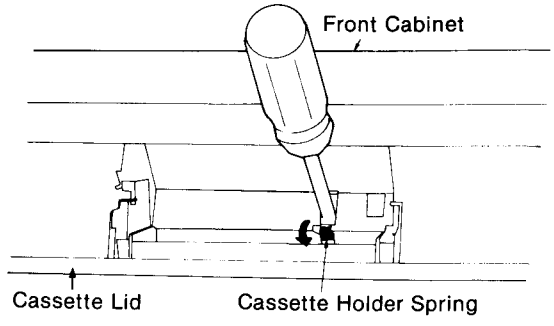


Fig. 11

| Ref. No. | Shown in Fig. —. | To remove —. | Remove —. |
|---|---|---|---|
| 1 | 1 | Front Cabinet Ass'y | Battery cover Ass'y .....(A)×1 |
| 2 | 1 | | Pull off the knob in the direction of arrow ①. .....(B)×1 |
| 3 | 1 | | Screw (3×55) mm .....(C)×5 |
| 4 | 1 | | Screw (3×12) mm .....(D)×3 |
| 5 | 1 | | Push out the front cabinet toward the front as shown by arrow ②. |
| 6 | 2 | | 3 pin socket (CS3) .....(E)×1 |
| 7 | 2 | Mechanism Unit | Screw (3×12) mm .....(F)×3 |
| 8 | 2 | | 4 pin socket (CS2) .....(G)×1 |
| 9 | 2 | | 3 pin socket (CS1) *1 .....(H)×1 |
| 10 | 1 | Printed Circuit Board *3 | Knob *2 .....(I)×3, (J)×2 |
| 11 | 3 | | Screw (3×12) mm .....(K)×7 |
| 12 | 3 | | Screw (3×50) mm .....(L)×1 |
| 13 | 4 | | Screw (3×12) mm .....(M)×2 |
| 14 | 4 | | Remove the power supply PCB by pushing the two tabs (N), one at a time, in the direction of arrows ③. |
| 15 | 5 | Cassette Lid Ass'y *4, 5 | Screw (3×8) mm .....(O)×1 |
| 16 | 5 | | While pushing the tabs on the cassette lid in the order of ⑤-⑥-⑦, pull out stoppers ⑤′, ⑥′ and ⑦′ toward the outside of the front cabinet. The cassette lid can then be removed. |
| 17 | 6 | Dial Chassis | Dial rope .....(P)×1 |
| 18 | 6 | | Screw (2.6×6) mm .....(Q)×1 |
| 19 | 6 | | Dram Gear .....(R)×1 |
| 20 | 6 | | Push the four ribs on the PCB in the direction of arrows ⑧ and take them out of the PCB holes. Shift the PCB in the direction of arrow ⑨ and take out the dial chassis. |
| 21 | 7 | Direction Knob | Remove the two ribs in the direction of arrow ⑩ ...(S)×2 |
| 22 | 8 | | Remove the Direction knob in the direction of arrow ⑪. |
| 23 | 7 | Reverse Mode Lever | Screw (3×12) mm .....(T)×1 |
| 24 | 8 | Knob (A) and Knob (B) | Pull up the change lever in the direction of arrow ⑫. |
| 25 | 8 | | Pull out the knob (A) and knob (B) in the direction of arrow ⑬ and ⑭. |

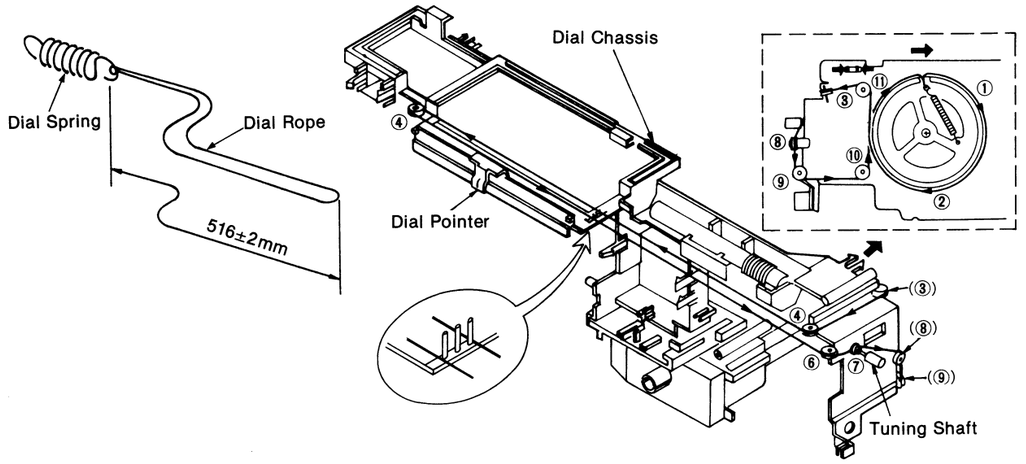
*1. Connector (CP1) is attached to a part hidden by the mechanism on the main PCB. To detach the connector, first take off the mechanism by separating it from the PCB. Since the leads to the socket are relatively thin, grasp the three leads at a point closest to the socket and then disconnect from the plug.
*2. Before removing the knob (I), lay a cloth on the top panel of the unit. Insert a slotted screwdriver between the knob and the rear cabinet and while slightly lifting it in the direction of arrow ⑮, pull the knob toward the front. (See Fig. 9) When installing the knob, be sure to fit it onto the T-shaped part on the switch with the front cabinet removed. Remove knob (J), in the same way as with knob (I), by first laying a cloth on the top panel and then using a slotted screwdriver.
*3. After removing the PCB, firmly pull the handle toward the front while pushing and spreading apart the rear cabinet in the direction of arrows ④. (See Fig. 3)
*4. Removing or attaching the cassette lid is easier if the eject lever is removed first. (It can be removed by lifting the tip and pulling it from the pivot.) (See Fig. 5)
*5. When removing, be sure to remove gradually: push in the direction of arrow ⑤ and push out ⑤′, push in the direction of arrow ⑥ and push out ⑥′, etc. Follow the procedure below to attach.
(1) Hook the cassette holder spring onto the rib on the cabinet. (See Fig. 10)
(2) Insert stoppers ⑤′, ⑥′, and ⑦′ into the rear of the front cabinet and firmly press the cassette lid into the front cabinet until it snaps in place. (See Fig. 5)
(3) Open the cassette lid and take the holder spring off the rib from the front with a screwdriver as shown in Fig. 11.



# DIAL THREADING

1. Cut the rope (RZZ0303) to 516±2mm and tie it to one end of the dial spring.
2. Route the rope according to the numbers in the figure.

**Note:**
Wrap the rope 4 times around the tuning shaft. After attaching, check to see that the dial spring stretches within 18 to 21mm.




# CR PARTS LIST

**ELECTRICAL PARTS LIST**

**Numbering System of Resistor**

Example

| ERD | 25 | F | J | 101 |
|---|---|---|---|---|
| Type | Wattage | Shape | Tolerance | Value (100Ω) |
| ERX | 2 | AN | J | 2R2 |
| Type | Wattage | Shape | Tolerance | Value (2.2Ω) |

**Numbering System of Capacitor**

Example

| ECKD | 1H | 102 | Z | F |
|---|---|---|---|---|
| Type | Voltage | Value (1000 pF) | Tolerance | Peculiarity |
| ECEA | 50 | M | R47 | |
| Type | Voltage | Peculiarity | Value (0.47 μF) | |

| Resistor Type | Wattage Tolerance |
|---|---|
| ERD: Carbon<br>ERG: Metal Film<br>ERX: Metal Film<br>ERQ: Fuse Type Metal<br>RRD: Carbon (Chip Type) | 10 : ⅛ W J : ±5%<br>12 : ½ W<br>25 : ¼ W<br>1 : 1 W<br>18 : ⅛ W |

| Capacitor Type | Voltage | | Tolerance |
|---|---|---|---|
| | ECEA Type | Other | |
| ECEA: Electrolytic<br>ECCD: Ceramic<br>ECKD: Ceramic<br>ECQM: Polyyester<br>ECQP: Polypropylene<br>ECET: Electrolytic<br>ECEA□□□N: Non Polar Electrolytic<br>QCU □: Ceramic (Chip Type)<br>ECUX: Ceramic (Chip Type) | 0J : 6.3 V<br>1A : 10 V<br>1C : 16 V<br>1E : 25 V<br>1H : 50 V<br>1V : 35 V<br>50 : 50 V<br>25 : 25 V<br>16 : 16 V | 2H : 500 V DC<br>1 : 100 V<br>DKC : 400 V AC | C : ±0.25 pF<br>J : ±5%<br>K : ±10%<br>Z : +80%, −20%<br>P : +100%, −0% |

## REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

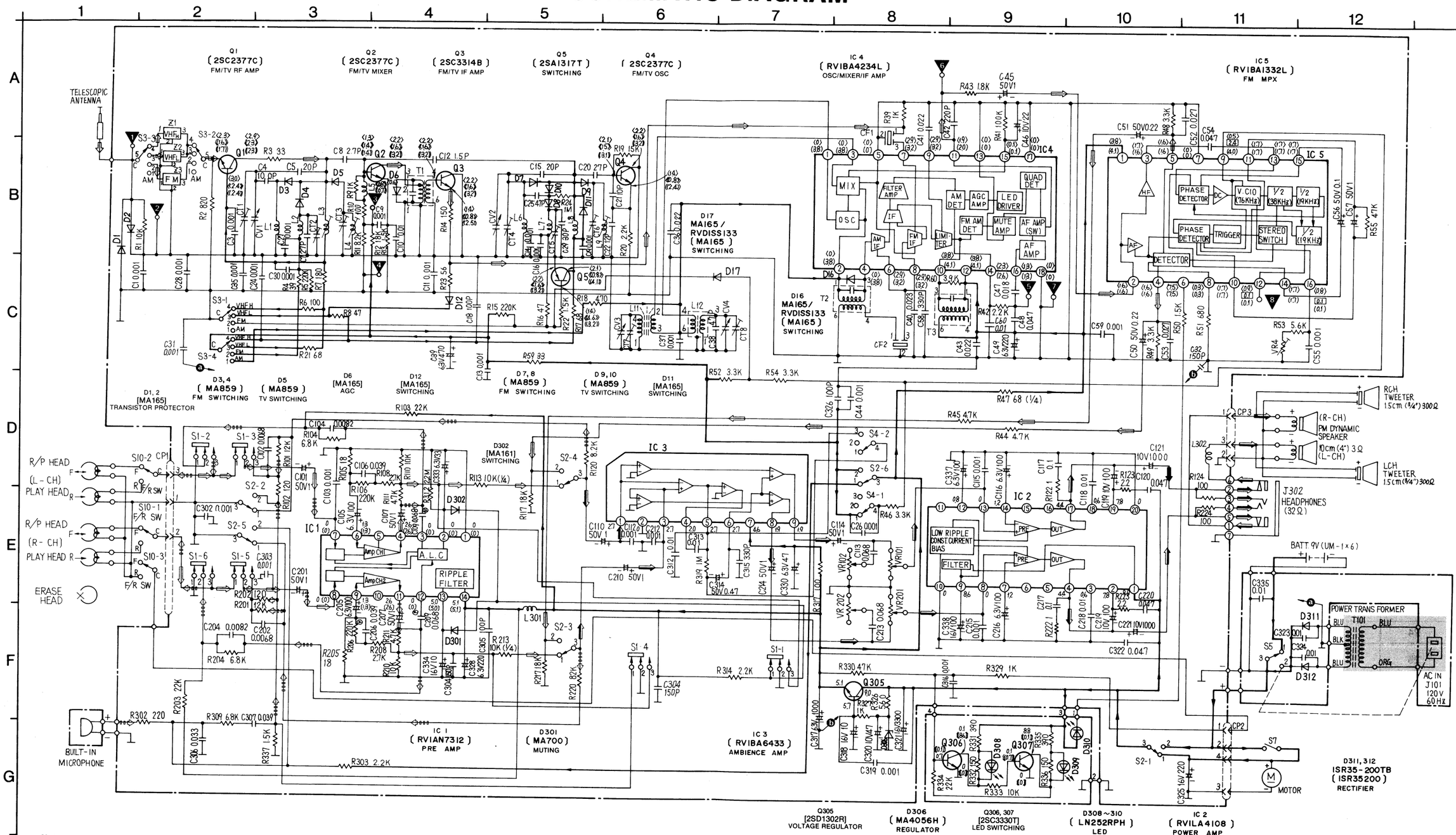
| Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. |
|---|---|---|---|---|---|---|---|---|---|
| **RESISTORS** | | R 24, 319 | ERD16TJ105 | R 312 | ERD16TJ225 | C 15 | RCBS1H200JY | C 104, 204 | RCBS1C822MX |
| | | R 41 | ERD16TJ104 | R 317 | ERD25FJ101 | C 21 | RCBS1H100JY | C 105, 116, 205, 216, 337 | ECEA0JU101 |
| R 1, 110, 210, 333 | ERD16TJ103 | R 43 | ERD16TJ182 | R 326 | ERD16TJ561 | C 22 | RCBS1H120JY | C 106, 206, 307 | ECFT1E393MX |
| R 2 | ERD16TJ821 | R 44, 45 | ERD25FJ472 | R 331, 335 | ERD16TJ391 | C 25 | RCBS1H470JY | C 109, 113, 209, 213 | ECFT1E683MX |
| R 3, 17, 21 | ERD16TJ330 | R 46, 48, 49, 52, 54 | ERD16TJ332 | R 337 | ERD25FJ152 | C 29 | RCBS1H300JY | C 117, 217 | ECQV1H104JZ |
| R 4 | ERD16TJ220 | R 47 | ERD25FJ680 | | | C 32 | RCBS1H151KB | C 119, 219 | ECEA1AU101 |
| R 5, 15, 106, 206 | ERD16TJ224 | R 51 | ERD16TJ681 | | **CAPACITORS** | C 36, 40, 41, 43 | RCBS1E223ZF | C 121, 221 | ECEA1AU102 |
| R 6, 10, 124, 224 | ERD16TJ101 | R 53 | ERD16TJ562 | C 1, 24, 28 | ECBT1H102MD | C 38 | RCBS1H4R7KY | C 201 | ECEA1H010 |
| R 7 | ERD16TJ181 | R 55, 330 | ERD16TJ473 | C 3, 9, 11, 13, 14, 16, 19, 26, 27, 30, 31, 35, 37, 44, 59, 103, 112, 115, 212, 215, 302, 303, 316, 319 | RCBS1H102KB | C 39 | ECEA0JU471 | C 304 | ECBT1H151KB |
| R 8 | ERD16TJ820 | R 59 | ERD25FJ330 | | | C 42 | RCBS1H221KB | C 306 | ECFT1E333MX |
| R 9, 39, 327, 329 | ERD16TJ102 | R 60 | ERD16TJ392 | | | C 45, 57, 101, 107, 110, 114, 207, 210, 214 | ECEA1HU010 | C 312, 313 | ECFT1E103MX |
| R 11 | ERD16TJ822 | R 101, 201 | ERD16TJ123 | | | | | C 314 | ECEA1HUR47 |
| R 12, 117, 217 | ERD16TJ183 | R 102, 202 | ERD16TJ121 | | | C 46 | ECEA1AU220 | C 317 | ECEA0JU102 |
| R 13, 22, 50 | ERD16TJ152 | R 103, 203, 334 | ERD16TJ223 | | | C 47 | ECFT1E183MX | C 318 | ECEA1CU100 |
| R 14, 332, 336 | ERD16TJ151 | R 104, 204, 309 | ERD16TJ682 | | | C 48, 54, 120, 220, 322 | ECFT1E473MX | C 320 | ECEA1AU470 |
| R 16 | ERD16TJ270 | R 105, 205 | ERD16TJ180 | C 4, 18, 305, 326 | RCBS1H101KB | C 49, 328 | ECEA0JU221 | C 321 | ECEA1CU332 |
| R 18 | ERD16TJ471 | R 108, 208 | ERD16TJ272 | C 5 | RCBS1H220JY | C 50, 51 | ECEA1HUR22 | C 323, 324, 335 | ECKD1H103ZF |
| R 19 | ERD16TJ153 | R 111, 211 | ERD16TJ472 | C 7, 20 | RCBS1H270JY | C 52, 53 | ECFT1E273MX | C 325 | ECEA1CU221 |
| R 20, 42, 303, 314 | ERD16TJ222 | R 113, 213 | ERD25FJ103 | C 8 | RCBS1H2R7KY | C 55 | ECQP1102JZ | C 330 | ECEA0JU470 |
| R 23 | ERD25FJ560 | R 120, 220 | ERD25FJ822 | C 10, 60, 118, 218 | RCBS1C103NY | C 56 | ECEA1HU0R1 | C 333 | ECEA0JU330 |
| | | R 122, 222 | ERD16TJ1R0 | C 12 | ECBT1H1R5MY | C 58, 315 | RCBS1H331KB | C 334 | ECEA1CK100 |
| | | R 123, 223 | ERD16TJ2R2 | | | C 102, 202 | RCBS1C682MX | C 338 | ECEA1CU101 |
| | | R 302 | ERD16TJ221 | | | | | | |



▼ Be sure to fold at the (▼) mark so that mark is on the outside.

Tape (RECORD) Signal Line
Tape (PLAY) Signal Line
Main Signal Line
Radio (FM) Signal Line
+(B) Voltage Line

# SCHEMATIC DIAGRAM

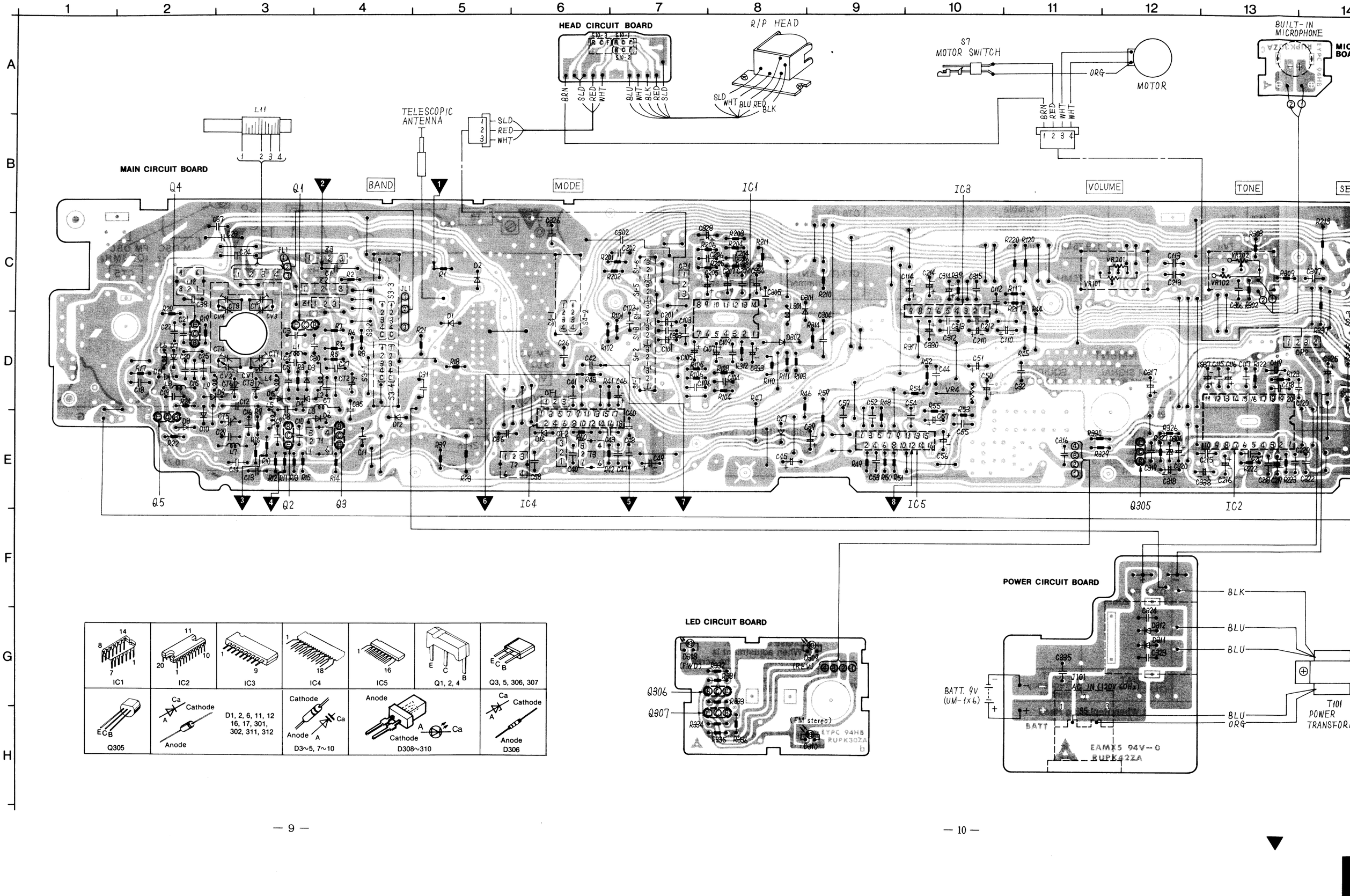

Q1 ( 2SC2377C ) FM/TV RF AMP
Q2 ( 2SC2377C ) FM/TV MIXER
Q3 ( 2SC3314B ) FM/TV IF AMP
Q5 ( 2SA1317T ) SWITCHING
Q4 ( 2SC2377C ) FM/TV OSC
IC 4 ( RV1BA4234L ) OSC/MIXER/IF AMP
IC 5 ( RV1BA1332L ) FM MPX
TELESCOPIC ANTENNA
D1, 2 [MA165] TRANSISTOR PROTECTOR
D3, 4 ( MA859 ) FM SWITCHING
D5 ( MA859 ) TV SWITCHING
D6 [MA165] AGC
D12 [MA165] SWITCHING
D7, 8 ( MA859 ) FM SWITCHING
D9, 10 ( MA859 ) TV SWITCHING
D11 [MA165] SWITCHING
D17 MA165 / RVDISS133 ( MA165 ) SWITCHING
D16 MA165 / RVDISS133 ( MA165 ) SWITCHING
R/P HEAD (L-CH) PLAY HEAD
R/P HEAD (R-CH) PLAY HEAD
ERASE HEAD
BUILT-IN MICROPHONE
IC 1 ( RV1AN7312 ) PRE AMP
D301 ( MA700 ) MUTING
IC 3 ( RV1BA6433 ) AMBIENCE AMP
Q305 [2SD1302R] VOLTAGE REGULATOR
D306 ( MA4056H ) REGULATOR
Q306, 307 [2SC3330T] LED SWITCHING
D308~310 ( LN252RPH ) LED
IC 2 ( RV1LA4108 ) POWER AMP
RCH TWEETER 1.5cm (3/4") 30Ω
(R-CH) FM DYNAMIC SPEAKER 10cm (4") 3Ω
(L-CH)
LCH TWEETER 1.5cm (3/4") 30Ω
J302 HEADPHONES (32Ω)
BATT 9V (UM-1×6)
POWER TRANS FORMER
AC IN J101 120V 60Hz
D311, 312 ISR35-200TB ( ISR35200 ) RECTIFIER
MOTOR

**Notes:**

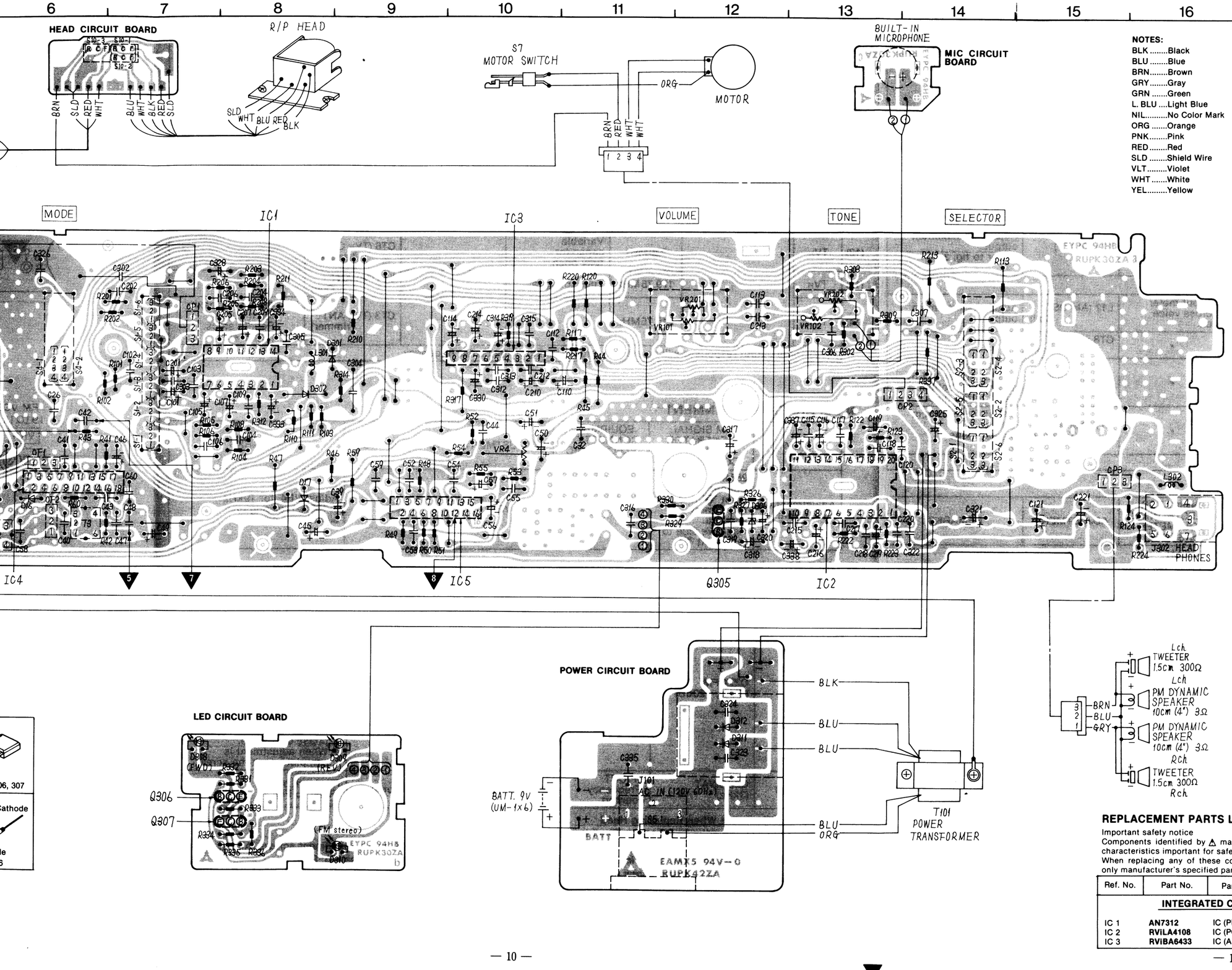
1. **S1-1~S1-6:** Record/playback changing switch in "Playback" position. (1...Playback, 3...Record)
2. **S2-1~S2-6:** Function select switch in "Power OFF/Tape" position. (1...Power OFF/Tape, 2...Radio)
3. **S3-1~S3-4:** Band select switch in "TV$_{High}$" position. (1...AM, 2...FM, 3...TV$_{Low}$, 4...TV$_{High}$)
4. **S4-1, S4-2:** Mode select switch in "FM Mono" position. (1...FM Mono, 2...Stereo, 3...Ambience)
5. **S5:** AC/DC changing switch in "DC" position. (1...DC, 2...AC)
6. **S7:** Motor ON/OFF switch in "OFF" position.
7. **S10-1~S10-3:** FWD/REV changing switch in "FWD" position.
8. **VR4:** Separation adjustment volume.
9. **VR101, 201:** Volume control.
10. **VR102, 202:** Tone control.
11. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
    < >...FM position, ( )...AM position, ◀ ▶...TVL position, (( ))...TVH position, [ ]...Recording position, □...MONO position, ][ ]...REV PLAY position, No mark...PLAY or FWD PLAY position
12. Battery current: No signal ..... 106mA
    Maximum output (radio) ..... 900mA
    (Motor on 1000mA)
    Maximum output (tape-PLAY) ..... 1130mA
    (tape-RECORD) ..... 1000mA
13. **Important safety notice**
    **The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.**
14. The mark (▼) shows test point. e.g. ▽=Test point 1.
15. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
    e.g. Q1
    [2SC2412NRTB, LNSTB] ← Production parts number
    [2SC2412] ← Supply parts number
    - **The supply parts number is described alone in the replacement parts list.**

- **This schematic diagram may be modified at any time with the development of new technology.**

# CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



# CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM




**NOTES:**

BLK .....Black
BLU .....Blue
BRN.....Brown
GRY.....Gray
GRN .....Green
L. BLU ....Light Blue
NIL.....No Color Mark
ORG .....Orange
PNK.....Pink
RED .....Red
SLD .....Shield Wire
VLT.....Violet
WHT .....White
YEL.....Yellow










## REPLACEMENT PARTS LIST

Important safety notice
Components identified by △ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

| Ref. No. | Part No. | Part Name & Description |
|---|---|---|
| **INTEGRATED CIRCUITS** | | |
| IC 1 | **AN7312** | IC (PRE AMP) |
| IC 2 | **RVILA4108** | IC (POWER AMP) |
| IC 3 | **RVIBA6433** | IC (AMBIENCE AMP) |





# ELECTRICAL PARTS LIST

| Ref. No. | Part No. | Part Name & Description |
|---|---|---|
| IC 4 | **RVIBA4234L** | IC (OSC/MIXER/IF AMP) |
| IC 5 | **RVIBA1332L** | IC (FM MPX) |
| **TRANSISTORS** | | |
| Q 1, 2, 4 | **2SC2377C** | Transistor (FM/TV RF, MIXER, OSC) |
| Q 3 | **2SC3314B** | Transistor (FM/TV IF AMP) |
| Q 5 | **2SA1317T** | Transistor (SWITCHING) |
| Q 305 | **2SD1302R** | Transistor (REGULATOR) |
| Q 306, 307 | **2SC3330T** | Transistor (LED DRIVE) |
| **DIODES & RECTIFIERS** | | |
| D 1, 2, 6, 11, 12, 16, 17 | **MA165** | Diode (PROTECTOR, AGC, SWITCHING) |
| D 3, 4, 5, 7, 8, 9, 10 | **MA859** | Diode (SWITCHING) |
| D 301 | **MA700** | Diode (MUTING) |
| D 302 | **MA161** | Diode (SWITCHING) |
| D 306 | **MA4056H** | Diode (REGULATOR) |
| D 308, 309, 310 | **LN252RPH** | LED (FM STEREO, DIRECTION/POWER/BATT) |
| D 311, 312 | **1SR35200** | Diode (RECTIFIER) |
| **COILS** | | |
| L 1, 5, 6 | **RLQY15G5** | Coil (RF) |
| L 2 | **RLD4Y44** | Coil (FM ANT) |
| L 3 | **RL04Y82** | Coil (TV$_L$ ANT) |
| L 4 | **RL04Y105** | Coil (TV$_H$ ANT) |
| L 7 | **RLD4Y43** | Coil (FM OSC) |
| L 8 | **RL04Y107** | Coil (TV$_L$ OSC) |
| L 9 | **RL04Y106** | Coil (TV$_H$ OSC) |
| L 11 | **RLF2W52** | Coil (AM ANT) |
| L 12 | **RL02B105** | Coil (AM OSC) |
| L 301 | **RLQY75S5** | Coil (FM TRAP) |
| L 302 | **RLQY30S6** | Coil (Noise Killer) |
| **TRANSFORMERS** | | |
| T 1, 3 | **RLi4B153** | IFT (FM/TV 1ST, 2ND) |
| T 2 | **RLi2B458** | IFT (AM) |
| T 101 | **RLT5K3C4A** | Power Transformer △ |
| **VARIABLE CAPACITORS** | | |
| CV 1, 2, 3, 4 (CT 1, 4, 7, 8) | **RCV4LD2V1K** | Variable Capacitor |
| **TRIMMER CONDENSERS** | | |
| CT 2, 3, 5, 6 | **RCV10AF2** | Trimmer Capacitor |
| **VARIABLE RESISTORS** | | |
| VR 4 | **EVN61AA00B14** | Separation Adjustment VR, 10kΩ/B |
| VR 101, 201 | **EWCUKAF15A14** | Volume Control VR, 10kΩ/A |
| VR 102, 202 | **EWCVKAF15A14** | Tone Control VR, 10kΩ/A |
| **CERAMIC FILTERS** | | |
| CF 1 | **RVF107HRWMZ** | Ceramic Filter (FM/TV, 10.7MHz) |
| CF 2 | **RVFSFU455B** | Ceramic Filter (AM, 455kHz) |
| **FILTERS** | | |
| Z 1 | **RXABPTB6** | B.P.F (TV$_H$) |
| Z 2 | **RXABPVB1** | B.P.F (TV$_L$) |
| Z 3 | **RXABPMB3** | B.P.F (FM) |
| **SWITCHES** | | |
| S 1 | **RSS2F05Z** | Slide Switch (REC/PLAY Changing) |
| S 2 | **RST2F14Z** | Toggle Switch (Function Selector) |
| S 3 | **RST4D02Z** | Toggle Switch (Band Selector) |
| S 4 | **RST3B29Z** | Toggle Switch (Mode Selector) |
| S 5 | **refer to J101** | AC/DC Changing Switch |
| S 7 | **RFA60Z** | Leaf Switch (Motor ON/OFF) |
| S 10 | **refer to M109** | Slide Switch (FWD/REV) |
| **JACKS** | | |
| J 101 (S5) | **RJJ112Z** | Socket, AC △ |
| J 302 | **RJJ1D27Z** | Jack, Headphones |

RX-FM45 RX-FM45

# MEASUREMENTS AND ADJUSTMENTS

## ■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set tone control to treble.
3. Set band switch to AM, FM, TVL or TVH.
4. Set power source voltage to 9V DC.
5. Set mode switch to FM stereo.
6. Output of signal generator should be no higher than necessary to obtain an output reading.

## ■ LW, MW and SW ALIGNMENT

| | BAND | SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS | SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR (ELECTRONICS VOLTMETER or SCOPE) | ADJUSTMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| | | AM-IF ALIGNMENT | | | | | |
| (1) | AM | Fashion loop of several turns of wire and radiate signal into loop of receiver. | 455kHz 30% Mod. at 400Hz | Point of non-interference. (on/about 600kHz) | Connect vert. amp. of scope to test point ▼5. Negative side to test point ▼7. | T2 (AM IFT) | Adjust for maximum output. (Refer to fig. 3) |
| | | MW-RF ALIGNMENT | | | | | |
| (2) | AM | 〃 | 511kHz | Tuning capacitor fully closed. | Output meter across voice coil. | L12 (AM OSC Coil) | Adjust for maximum output. |
| (3) | AM | 〃 | 1,670kHz | Tuning capacitor fully open. | 〃 | CT8 (AM OSC Trimmer) | 〃 |
| (4) | AM | 〃 | 550kHz | Tune to signal. | 〃 | (*1) L11 (AM ANT Coil) | Adjust for maximum output. Adjust L11 by moving coil bobbin along ferrite core. |
| (5) | AM | 〃 | 1,500kHz | 〃 | 〃 | CT7 (AM ANT Trimmer) | Adjust for maximum output. Repeat steps (2)~(5). |

(*1) Cement antenna bobbin with wax after completing alignment.

## ■ FM ALIGNMENT

| | BAND | SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS | SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR (ELECTRONICS VOLTMETER or SCOPE) | ADJUSTMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| | | FM (TVH/TVL/FM) | | | | | |
| (1) | TVH | High side thru. 0.001μF to test point ▼3. Negative side to test point ▼4. | 10.7MHz (SWP.) | Point of non-interference. (on/about 90MHz) | Connect vert. amp. of scope to test point ▼6. Negative side to test point ▼7. | T1 (TV/FM 1st) | Adjust for maximum amplitude. (Refer to fig. 4.) |
| (2) | TVH | 〃 | 〃 | 〃 | 〃 | T3 (TV/FM 2nd) | Adjust for maximum amplitude. (Refer to fig. 5.) |
| | | FM (TVH/TVL/FM) | | | | | |
| (3) | TVL | Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2. | 58.5MHz | Variable capacitor fully closed. | Output meter across voice coil. | L8 (TVL OSC Coil) | (*2) Adjust for maximum output. |
| (4) | TVL | | 89.0MHz | Variable capacitor fully open. | 〃 | CT4 (TVL OSC Trimmer) | 〃 |
| (5) | TVL | | 59.75MHz | Tune to signal. | 〃 | L3 (TVL ANT Coil) | 〃 |
| (6) | TVL | | 87.75MHz | 〃 | 〃 | CT1 (TVL ANT Trimmer) | (*2) Adjust for maximum output. Repeat steps (3)~(6). |



## ■ FM ALIGNMENT

| | BAND | SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS | SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR (ELECTRONICS VOLTMETER or SCOPE) | ADJUSTMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| (7) | FM | Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2. | 87.2MHz | Variable capacitor fully closed. | Output meter across voice coil. | L7 (FM OSC Coil) | (*2) Adjust for maximum output. |
| (8) | FM | | 109.3MHz | Variable capacitor fully open. | 〃 | CT5 (FM OSC Trimmer) | 〃 |
| (9) | FM | | 90MHz | Tune to signal. | 〃 | L2 (FM ANT Coil) | 〃 |
| (10) | FM | | 106MHz | 〃 | 〃 | CT2 (FM ANT Trimmer) | (*2) Adjust for maximum output. Repeat steps (7)~(10). |
| (11) | TVH | 〃 | 177MHz | Variable capacitor fully closed. | Output meter across voice coil. | L9 (TVH OSC Coil) | (*2) Adjust for maximum output. |
| (12) | TVH | | 220MHz | Variable capacitor fully open. | 〃 | CT6 (TVH OSC Trimmer) | 〃 |
| (13) | TVH | | 179.75MHz | Tune to signal. | 〃 | L4 (TVH ANT Coil) | 〃 |
| (14) | TVH | | 215.75MHz | 〃 | 〃 | CT3 (TVH ANT Trimmer) | (*2) Adjust for maximum output. Repeat steps (11)~(14). |

(*2) Three output responses will be present; proper tuning is the center frequency.

## ■ SEPARATION ALIGNMENT

| ITEM | FM SIGNAL GENERATOR SOURCE CONNECTION | EQUIPMENT CONNECTION ELECTRONIC COUNTER | ADJUSTMENT | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| Adjustment of pilot signal. | 98MHz, 60dB Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2. | ▼8...(+) ▼7...(−) | VR4 | 19kHz | Adjust VR4, for 19kHz (±100Hz) reading on electronics counter. |

## ■ TAPE ADJUSTMENT

| ITEM | INPUT | MEASUREMENT POINT | SPECIFICATION | ADJUSTMENT POINT | REMARKS |
|---|---|---|---|---|---|
| Azimuth | QZZCFM (8kHz, −20dB) | Headphones Jack | Maximum Output | Azimuth Screw (Refer to Fig. 6) | 1) Connect wires as shown in Fig. 8.<br>2) Playback a standard playback adjustment tape (8kHz, −20dB) and adjust the azimuth adjustment screw (A) until the outputs from the left and right channels reach the maximum levels. (Repeat forwarding and reversing.)<br>3) Also adjust it so that the Lissajous pattern shows no phase difference.<br>4) When adjustment is complete, lock the screw. |
| Tape Speed | QZZCWAT (3kHz) | SP OUT (Frequency counter) | 3000±90Hz | Motor Volume | Playback mode (Refer to Fig. 7) |

■ **Azimuth Adjustment When Replacing Head**

1. Turn the azimuth adjustment screw (B) all the way in (See Fig. 6).
2. While repeatedly forwarding and reversing a mirror tape (QZZCRD), adjust the azimuth adjustment screws (A) and (B) so that the test tape does not come in contact (is not twisted, etc.) with the tape guide (See Fig. 9).
3. Lock the azimuth adjustment screw (B) in place.
4. Perform the azimuth adjustment in (1) under Audio Adjustment.



■ ALIGNMENT P

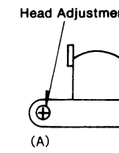



Fig. 6

## ■ FM ALIGNMENT

| | BAND | SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS | SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY | RADIO DIAL SETTING | INDICATOR (ELECTRONICS VOLTMETER or SCOPE) | ADJUSTMENT | REMARKS |
|---|---|---|---|---|---|---|---|
| (7) | FM | Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2. | 87.2MHz | Variable capacitor fully closed. | Output meter across voice coil. | L7 (FM OSC Coil) | (*2) Adjust for maximum output. |
| (8) | FM | | 109.3MHz | Variable capacitor fully open. | 〃 | CT5 (FM OSC Trimmer) | 〃 |
| (9) | FM | | 90MHz | Tune to signal. | 〃 | L2 (FM ANT Coil) | 〃 |
| (10) | FM | | 106MHz | 〃 | 〃 | CT2 (FM ANT Trimmer) | (*2) Adjust for maximum output. Repeat steps (7)~(10). |
| (11) | TVH | 〃 | 177MHz | Variable capacitor fully closed. | Output meter across voice coil. | L9 (TVH OSC Coil) | (*2) Adjust for maximum output. |
| (12) | TVH | | 220MHz | Variable capacitor fully open. | 〃 | CT6 (TVH OSC Trimmer) | 〃 |
| (13) | TVH | | 179.75MHz | Tune to signal. | 〃 | L4 (TVH ANT Coil) | 〃 |
| (14) | TVH | | 215.75MHz | 〃 | 〃 | CT3 (TVH ANT Trimmer) | (*2) Adjust for maximum output. Repeat steps (11)~(14). |

(*2) Three output responses will be present; proper tuning is the center frequency.

## ■ SEPARATION ALIGNMENT

| ITEM | FM SIGNAL GENERATOR SOURCE CONNECTION | EQUIPMENT CONNECTION ELECTRONIC COUNTER | ADJUSTMENT | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| Adjustment of pilot signal. | 98MHz, 60dB Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2. | ▼8...(+) ▼7...(−) | VR4 | 19kHz | Adjust VR4, for 19kHz (±100Hz) reading on electronics counter. |

## ■ TAPE ADJUSTMENT

| ITEM | INPUT | MEASUREMENT POINT | SPECIFICATION | ADJUSTMENT POINT | REMARKS |
|---|---|---|---|---|---|
| Azimuth | QZZCFM (8kHz, −20dB) | Headphones Jack | Maximum Output | Azimuth Screw (Refer to Fig. 6) | 1) Connect wires as shown in Fig. 8.<br>2) Playback a standard playback adjustment tape (8kHz, −20dB) and adjust the azimuth adjustment screw (A) until the outputs from the left and right channels reach the maximum levels. (Repeat forwarding and reversing.)<br>3) Also adjust it so that the Lissajous pattern shows no phase difference.<br>4) When adjustment is complete, lock the screw. |
| Tape Speed | QZZCWAT (3kHz) | SP OUT (Frequency counter) | 3000±90Hz | Motor Volume | Playback mode (Refer to Fig. 7) |

■ **Azimuth Adjustment When Replacing Head**

1. Turn the azimuth adjustment screw (B) all the way in (See Fig. 6).
2. While repeatedly forwarding and reversing a mirror tape (QZZCRD), adjust the azimuth adjustment screws (A) and (B) so that the test tape does not come in contact (is not twisted, etc.) with the tape guide (See Fig. 9).
3. Lock the azimuth adjustment screw (B) in place.
4. Perform the azimuth adjustment in (1) under Audio Adjustment.



## ■ ALIGNMENT POINTS

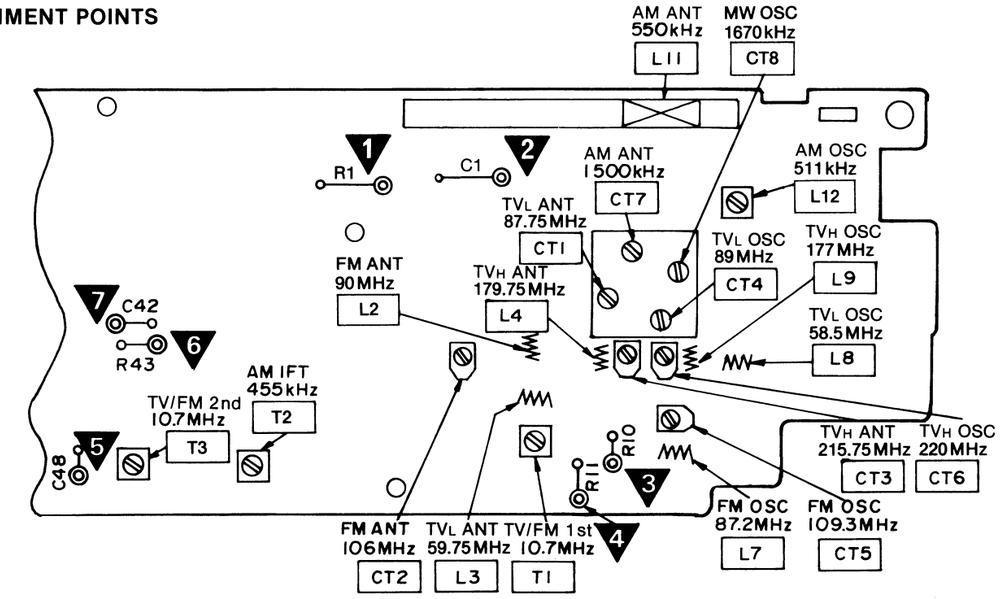



Fig. 1

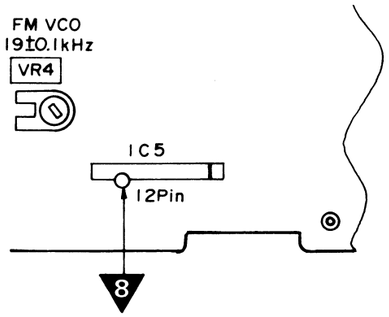



Fig. 2

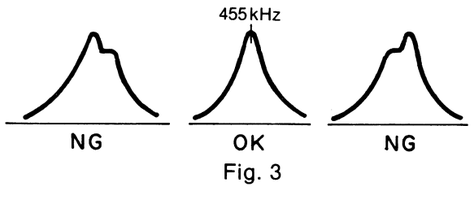



Fig. 3

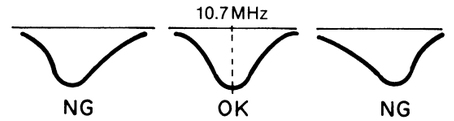



Fig. 4

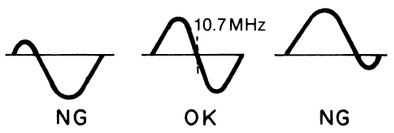



Fig. 5

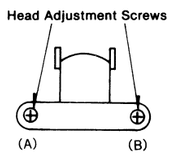



Fig. 6

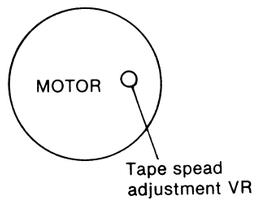



Fig. 7

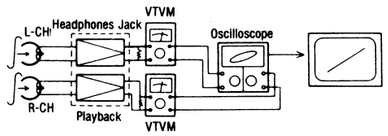



Fig. 8

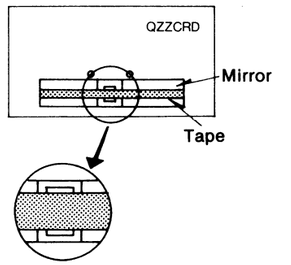



Fig. 9

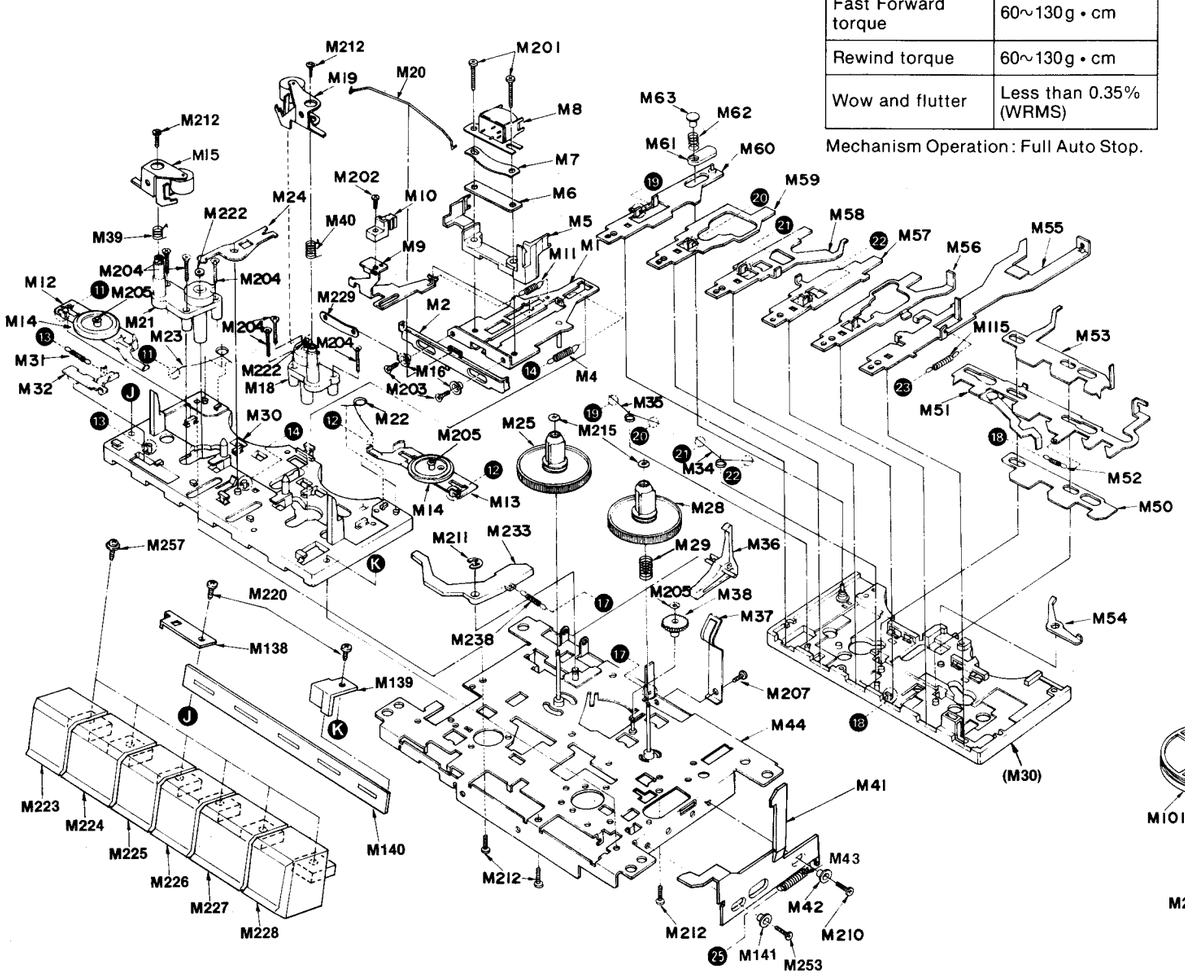
# MECHANISM PARTS LOCATION

## ■ Front View

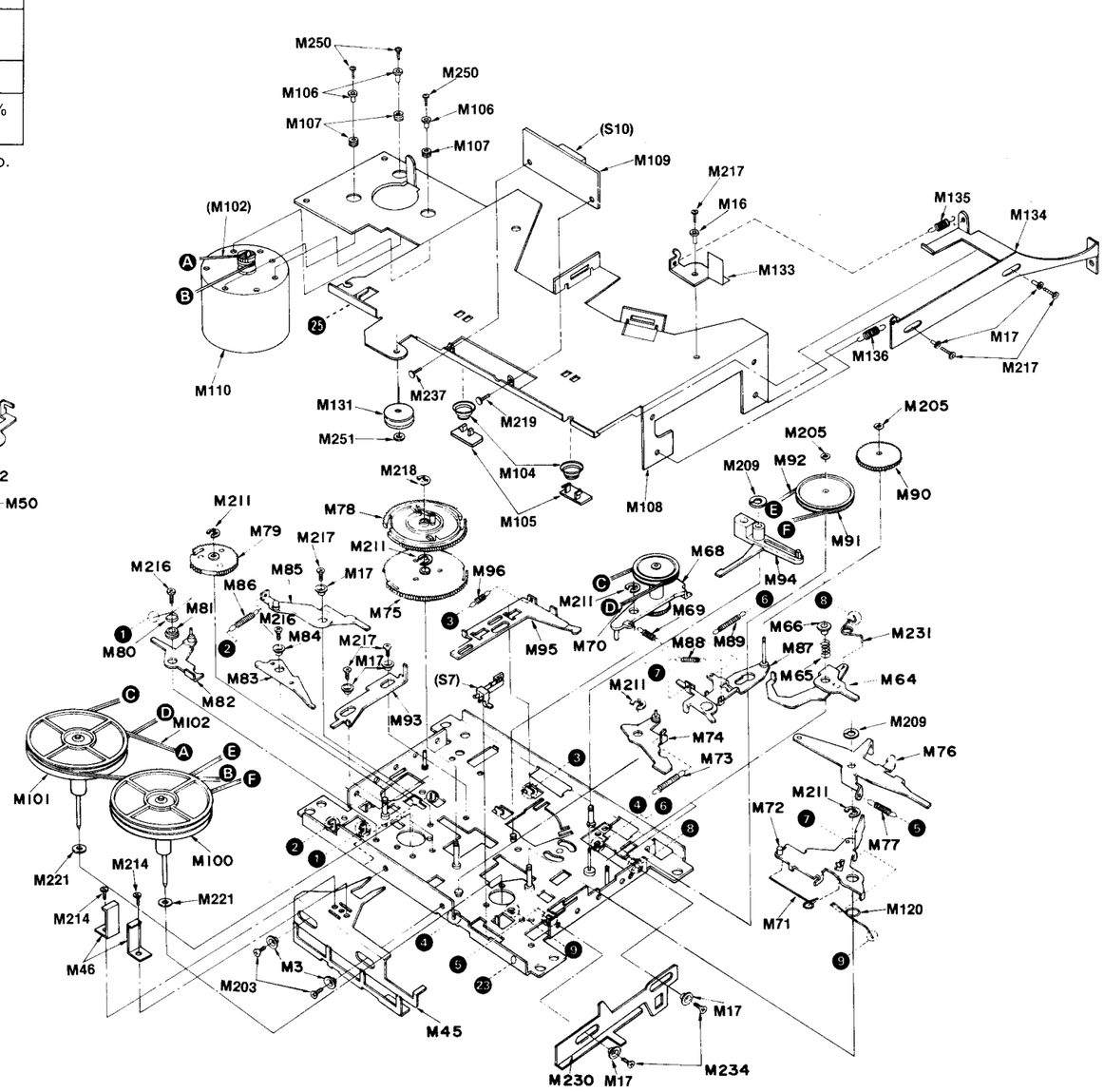
Specifications

| | |
|---|---|
| Playback torque | 25~55g • cm |
| Fast Forward torque | 60~130g • cm |
| Rewind torque | 60~130g • cm |
| Wow and flutter | Less than 0.35% (WRMS) |

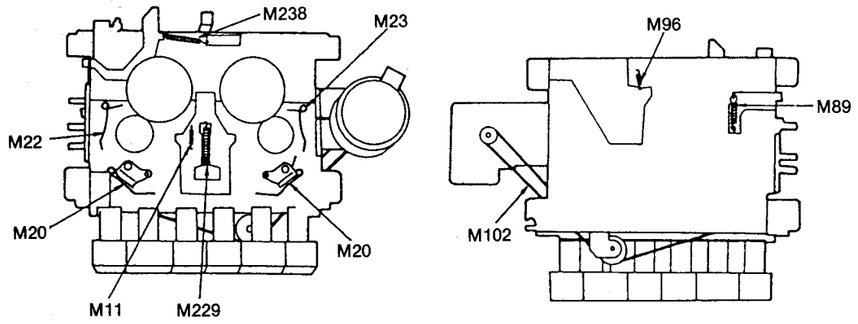
Mechanism Operation: Full Auto Stop.




## ■ Rear View




## MECHANISM SPRING LOCATION








REPLACEMEN

| Ref. No. | Pa |
|---|---|
| | M |
| M 1 | RFU56 |
| M 2 | RFY55 |
| M 3 | RFX12 |
| M 4 | RFS52 |
| M 5 | RFU57 |
| M 6 | RFE20 |
| M 7 | RFS49 |
| M 8 | RJH4C |
| M 9 | RFY50 |
| M 10 | RJH2C |
| M 11 | RFS49 |
| M 12 | RFD20 |
| M 13 | RFD20 |
| M 14 | RFK15 |
| M 15 | RFR33 |
| M 16 | RFX12 |
| M 17 | RFX13 |
| M 18 | RFE20 |
| M 19 | RFR32 |
| M 20 | RFS54 |
| M 21 | RFE20 |
| M 22 | RFS50 |
| M 23 | RFS50 |
| M 24 | RFY50 |
| M 25 | RFJ54 |
| M 28 | RFJ49 |
| M 29 | RFS54 |
| M 30 | RFU58 |
| M 31 | RFS50 |
| M 32 | RFX11 |
| M 34 | RFS54 |
| M 35 | RFS50 |
| M 36 | RFY50 |
| M 37 | RFS50 |
| M 38 | RFG74 |
| M 39 | RFS55 |
| M 40 | RFS55 |
| M 41 | RFY56 |
| M 42 | RFX12 |
| M 43 | RFS58 |
| M 44 | RFU59 |
| M 45 | RFY50 |
| M 46 | RFD22 |
| M 50 | RFX13 |
| M 51 | RFY55 |
| M 52 | RFS54 |
| M 53 | RFY52 |
| M 54 | RFY55 |
| M 55 | RFY61 |
| M 56 | RFY61 |
| M 57 | RFY61 |

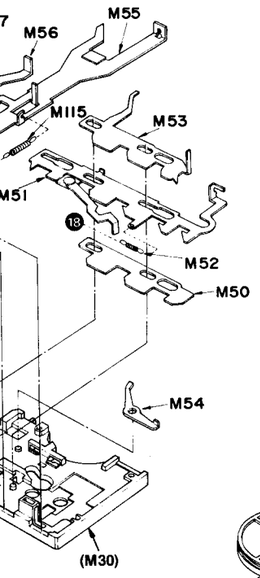
# MECHANISM PARTS LOCATION

6 7 8 9 10 11 12 13

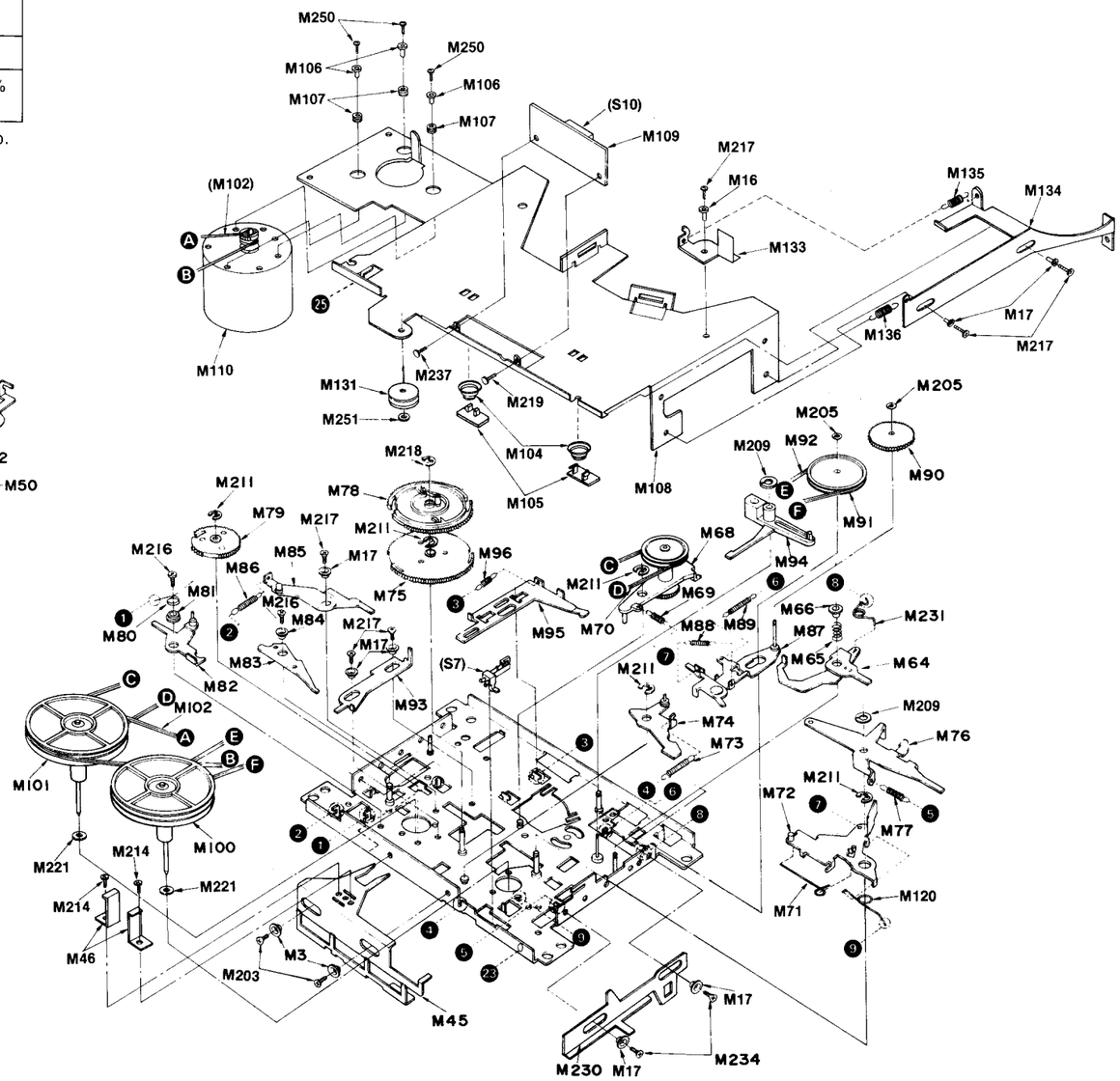
tions

| | |
|---|---|
| orque | 25~55g • cm |
| ard | 60~130g • cm |
| que | 60~130g • cm |
| lutter | Less than 0.35% (WRMS) |

Operation: Full Auto Stop.




## ■ Rear View



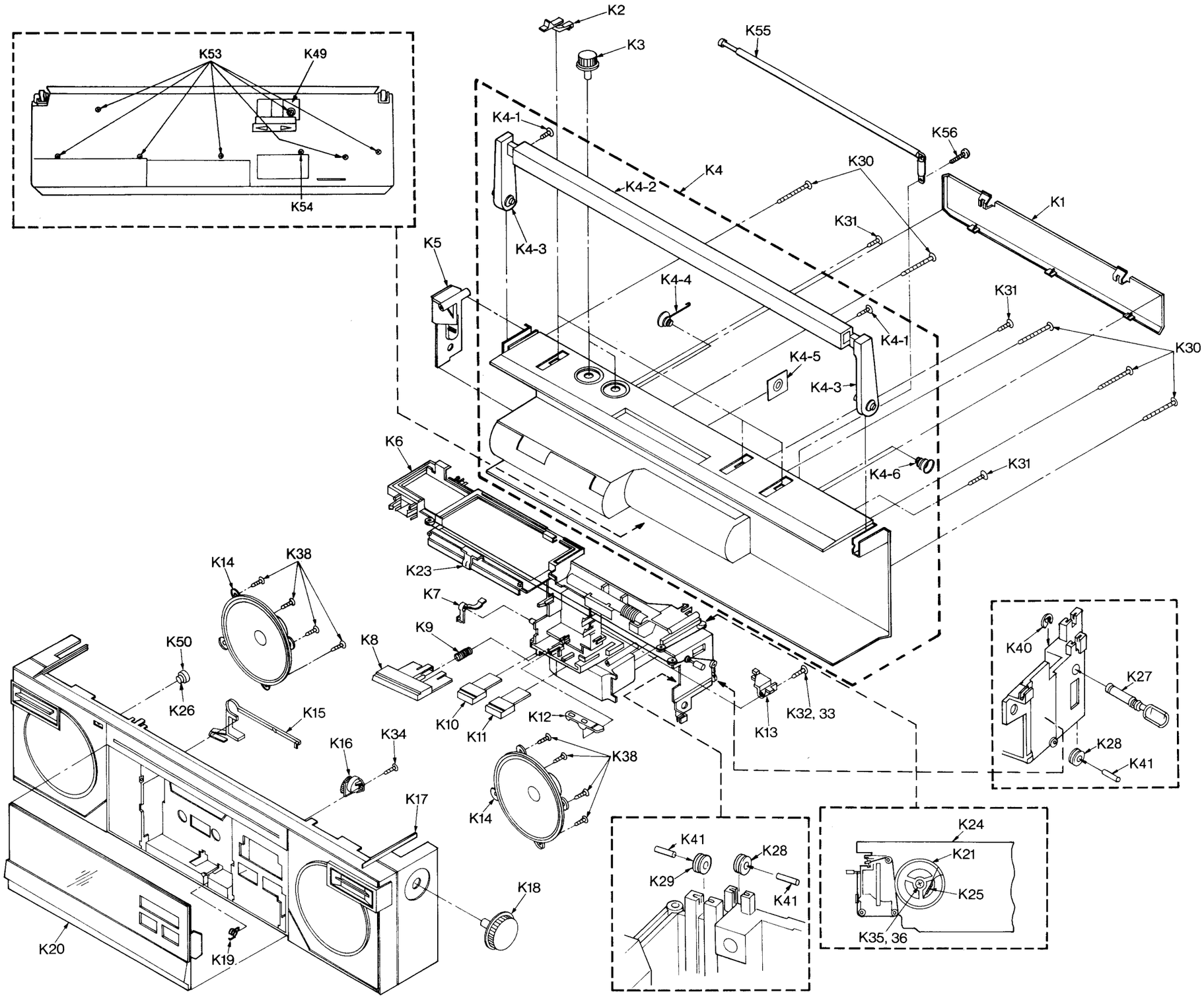



## REPLACEMENT PARTS LIST

| Ref. No. | Part No. | Part Name & Description |
|---|---|---|
| | | **MECHANICAL PARTS** |
| M 1 | **RFU56Z** | Head Panel |
| M 2 | **RFY557Z** | Lever, Headphone Panel |
| M 3 | **RFX128Z** | Collar, Change |
| M 4 | **RFS525Z** | Spring, Head Panel |
| M 5 | **RFU57Z** | Head Base |
| M 6 | **RFE207Z** | Head Plate |
| M 7 | **RFS498Z** | Leaf Spring |
| M 8 | **RJH4C06GZ** | R/P Head |
| M 9 | **RFY501Z** | Arm, Erase Head |
| M 10 | **RJH2C03XZ** | Erase Head |
| M 11 | **RFS499Z** | Spring, Erase Head Arm |
| M 12 | **RFD203Z** | Trigger Roller Plate (L) Ass'y |
| M 13 | **RFD204Z** | Trigger Roller Plate (R) Ass'y |
| M 14 | **RFK15Z** | Trigger Roller Ass'y |
| M 15 | **RFR33Z** | Pinch Roller (L) Ass'y |
| M 16 | **RFX129Z** | Stopper, Reverse Lever, etc. |
| M 17 | **RFX135Z** | Collar, Change Lever (B), etc. |
| M 18 | **RFE209Z** | Pinch Roller Arm Base (R) |
| M 19 | **RFR32Z** | Pinch Roller (R) Ass'y |
| M 20 | **RFS545Z** | Spring, Pinch Roller Arm |
| M 21 | **RFE208Z** | Pinch Roller Arm Base (L) |
| M 22 | **RFS502Z** | Spring, Trigger Roller (R) |
| M 23 | **RFS503Z** | Spring, Trigger Roller (L) |
| M 24 | **RFY502Z** | Lever, Head Base Control |
| M 25 | **RFJ54Z** | Reel Table (L) Ass'y |
| M 28 | **RFJ49Z** | Reel Table (R) Ass'y |
| M 29 | **RFS546Z** | Spring, Back Tension |
| M 30 | **RFU58Z** | Button Base |
| M 31 | **RFS506Z** | Spring, Erase Safety Plate |
| M 32 | **RFX119Z** | Plate, Erase Safety |
| M 34 | **RFS547Z** | Spring, Button Lever (A) |
| M 35 | **RFS508Z** | Spring, Button Lever (B) |
| M 36 | **RFY503Z** | Lever, Erase |
| M 37 | **RFS509Z** | Spring, Cassette Holder |
| M 38 | **RFG74Z** | Gear, FF/REW |
| M 39 | **RFS555Z** | Spring, Pinch Roller (L) |
| M 40 | **RFS556Z** | Spring, Pinch Roller (R) |
| M 41 | **RFY562Z** | Lever, Cassette Eject |
| M 42 | **RFX120Z** | Collar (A), Cassette Eject Lever |
| M 43 | **RFS581Z** | Spring, Cassette Eject Lever |
| M 44 | **RFU59Z** | Mechanism Base Ass'y |
| M 45 | **RFY505Z** | Slid Lever Cassis |
| M 46 | **RFD224Z** | Spring Plate, FWD/REV Switch |
| M 50 | **RFX137Z** | R/C Stopper |
| M 51 | **RFY558Z** | Operating Plate |
| M 52 | **RFS549Z** | Spring, Operating Plate |
| M 53 | **RFY526Z** | Plate, Switch Operation |
| M 54 | **RFY559Z** | Lever, Rewind |
| M 55 | **RFY614Z** | Lever, Rec |
| M 56 | **RFY615Z** | Lever, Play |
| M 57 | **RFY616Z** | Lever, Rew |
| M 58 | **RFY617Z** | Lever, FF |
| M 59 | **RFY618Z** | Lever, Stop |
| M 60 | **RFY619Z** | Lever Ass'y, Pause |
| M 61 | **RFY513Z** | Lever, Pause |
| M 62 | **RFS512Z** | Spring, Pause Lever |
| M 63 | **RFX122Z** | Stopper, Pause Button Lever |
| M 64 | **RFY514Z** | Lever, Mode Change |
| M 65 | **RFS513Z** | Spring, Mode Change Lever |
| M 66 | **RFX124Z** | Stopper, Mode Change Lever |
| M 68 | **RFK16Z** | RF Clutch Ass'y |
| M 69 | **RFS550Z** | Spring, RF Clutch Ass'y |
| M 70 | **RFB59Z** | FF Belt |
| M 71 | **RFS514Z** | Spring, Lift Arm |
| M 72 | **RFY516Z** | Lift Arm Ass'y |
| M 73 | **RFS551Z** | Spring, Main Trigger Arm |
| M 74 | **RFY517Z** | Main Trigger Arm Ass'y |
| M 75 | **RFG75Z** | Main Gear |
| M 76 | **RFY518Z** | Change Lever Ass'y |
| M 77 | **RFS552Z** | Spring, Change Lever Ass'y |
| M 78 | **RFG82Z** | Gear, Change Lever Ass'y |
| M 79 | **RFG77Z** | Head Plate Gear |
| M 80 | **RFS517Z** | Spring, Trigger Arm |
| M 81 | **RFX125Z** | Collar (B), Trigger Arm Ass'y |
| M 82 | **RFY519Z** | Trigger Arm Ass'y |
| M 83 | **RFY520Z** | Trigger Arm |
| M 84 | **RFX123Z** | Collar (C), Trigger Arm |
| M 85 | **RFY521Z** | Play Arm Ass'y |
| M 86 | **RFS518Z** | Spring, Play Arm Ass'y |
| M 87 | **RFG79Z** | Cam Gear Plate Ass'y |
| M 88 | **RFS553Z** | Spring, Cam Gear Plate |
| M 89 | **RFS520Z** | Spring, Cam Gear Plate |
| M 90 | **RFG78Z** | Cam Gear |
| M 91 | **RFQ35Z** | Middle Pulley |
| M 92 | **RFB60Z** | Belt, Full Auto |
| M 93 | **RFY522Z** | RF Lever |
| M 94 | **RFE211Z** | Plate, Position Detector |
| M 95 | **RFY523Z** | Lever, Control |
| M 96 | **RFS554Z** | Spring, Control Lever |
| M 100 | **RFF35Z** | Flywheel (A) Ass'y |
| M 101 | **RFF36Z** | Flywheel (B) Ass'y |
| M 102 | **RFB61Z** | Belt, Main |
| M 104 | **RFS522Z** | Spring, Dumper |
| M 105 | **RFE212Z** | Plate, Dumper Spring |
| M 106 | **RFX136Z** | Collar, Motor |
| M 107 | **QBG1373** | Motor Cushion |
| M 108 | **RFD237Z** | Plate (Flywheel Holder) |
| M 109 | **RFU67Z** | Switch P.C.B. Ass'y |
| M 110 | **RFM64Z** | DC Motor Ass'y |
| M 115 | **RFS523Z** | Spring, REC Lever |
| M 120 | **RFS582Z** | Spring, Lift Arm |
| M 131 | **RFQ37Z** | Middle Pulley (B) |
| M 133 | **RFY564Z** | Lever, Reverse |
| M 134 | **RFY565Z** | Record Lever |
| M 135 | **RFS558Z** | Spring, Record Lever |
| M 136 | **RFS560Z** | Spring, Reverse Lever |
| M 138 | **RFD225Z** | Bracket (L) |
| M 139 | **RFD226Z** | Bracket (R) |
| M 140 | **RFY566Z** | Plate, Button Lever Retainer |
| M 141 | **RFN157Z** | Collar, Cassette Eject Lever |
| M 201 | **RFE214Z** | Screw, R/P Head (Azimus) M'tg |
| M 202 | **RFE99Z** | Screw, Erase Head M'tg |
| M 203 | **XQC2 + 3** | Screw ⊕2×3, Slide Lever Chassis, etc. M'tg |
| M 204 | **RFE215Z** | Screw ⊕2×8.5, Pinch Roller Arm Base M'tg |
| M 205 | **RFE216Z** | Washer, Trigger Roller Plate etc. M'tg |
| M 207 | **XSN2 + 3** | Screw ⊕2×3, Cassette Holder M'tg |
| M 209 | **RFN158Z** | Washer, Change Lever Ass'y M'tg |
| M 210 | **RFE221Z** | Screw ⊕2×5, Eject Lever M'tg |
| M 211 | **XUC25FT** | Retaining Ring Stop Ring ϕ2.5, Lift Arm etc. M'tg |
| M 212 | **RFE222Z** | Screw ⊕2×6, Button Base, etc. M'tg |
| M 214 | **XQN2 + 15** | Screw ⊕2×15, FWD/REV Spring Plate M'tg) |
| M 215 | **RFE133Z** | Washer, Reel Table |
| M 216 | **XQN2 + 35** | Screw ⊕2×35, Trigger Arm M'tg |
| M 217 | **XQN2 + 25** | Screw ⊕2×25, Play Arm etc. M'tg |
| M 218 | **RFN156Z** | Retaining Ring |
| M 219 | **XSN2 + 4** | Screw ⊕2×4, Switch Plate M'tg |
| M 220 | **XSN2 + 8** | Screw ⊕2×8, Bracket M'tg |
| M 221 | **RFE218Z** | Washer (for Flywheel etc.) |
| M 222 | **RFE219Z** | Washer (for Pinch Roller Arm Base) |
| M 223 | **RBCK15Z** | Button, Record |
| M 224 | **RBCK16Z** | Button, Play Back |
| M 225 | **RBCK17Z** | Button, Rewind |
| M 226 | **RBCK18Z** | Button, FF |
| M 227 | **RBCK19Z** | Button, Stop |
| M 228 | **RBCK20Z** | Button, Pause |
| M 229 | **RFS559Z** | Spring, Damper |
| M 230 | **RFY563Z** | Change Lever (B) |
| M 231 | **RFS526Z** | Spring, Mode Change Lever |
| M 233 | **RFY528Z** | Change Lever (A) |
| M 234 | **XQC2 + 4** | Screw ⊕2×4, Change Lever (B) M'tg |
| M 237 | **RFE243Z** | Screw, SW P.C.B Ass'y M'tg |
| M 238 | **RFS528Z** | Spring, Change Lever (B) |
| M 250 | **XSN26 + 6** | Screw ⊕2.6×6, Motor M'tg |
| M 251 | **RFN155Z** | Washer, Middle Pulley-B |
| M 253 | **XSN16 + 45** | Screw ⊕1.6×45, Cassette Eject Lever M'tg |
| M 257 | **XYE2 + FE6** | Screw ⊕2×6, Button M'tg |

RX-FM45 RX-FM45

# CABINET PARTS LOCATION







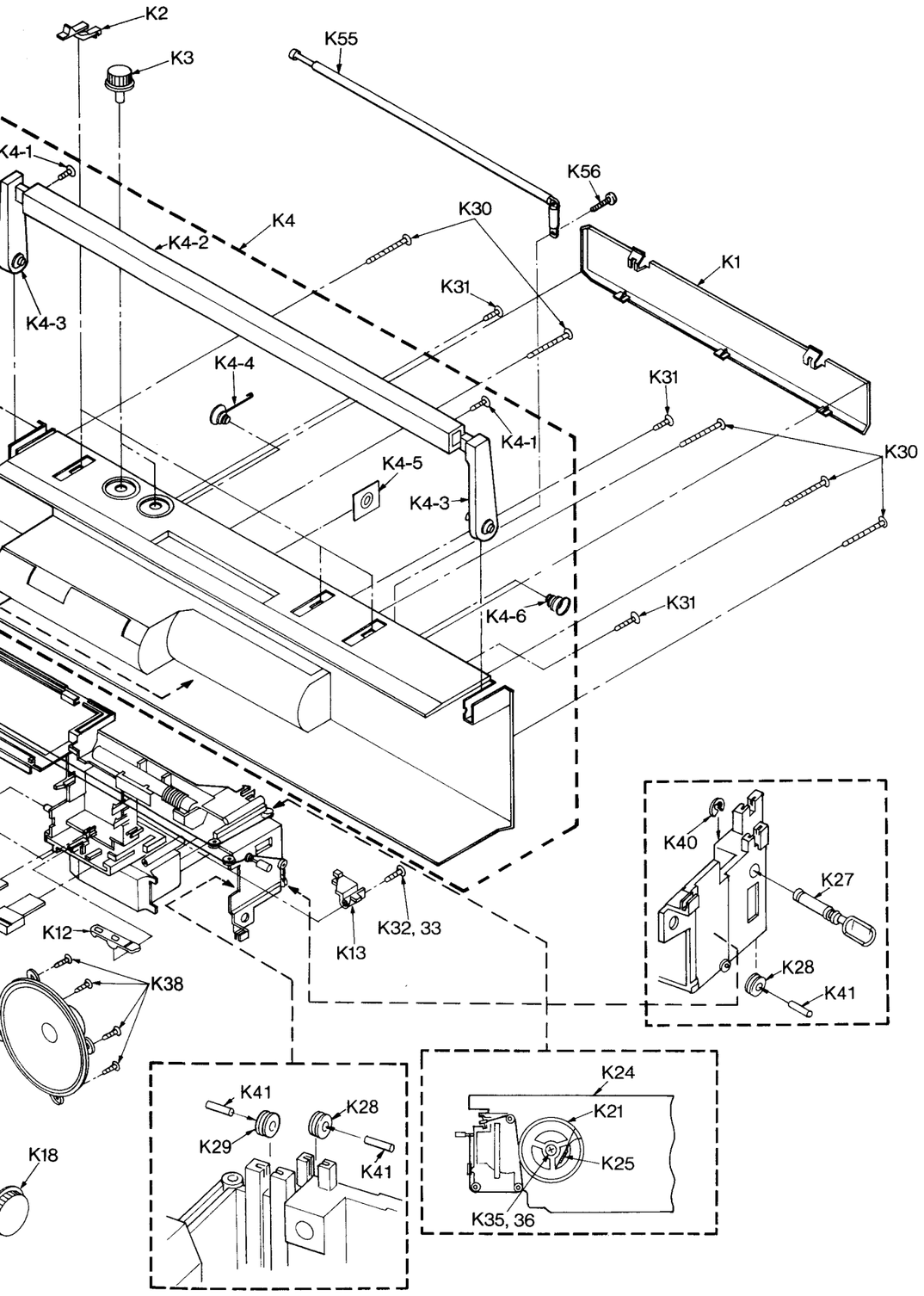

**REPLACEMENT**

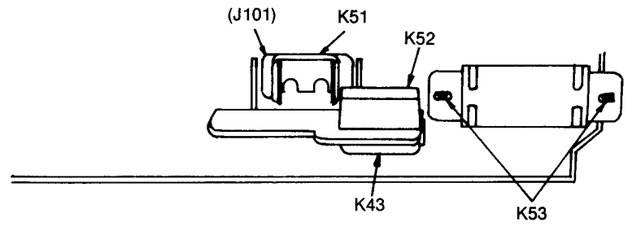
Important safety notic
Components identifie
characteristics impor
When replacing any
only manufacturer's s

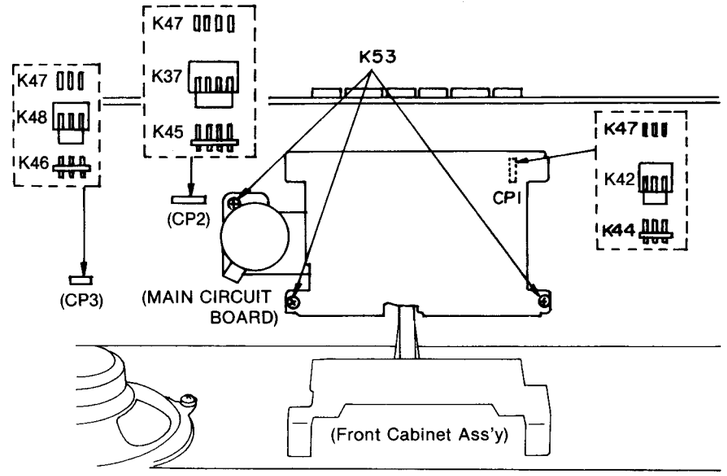
| Ref. No. | Part |
|---|---|
| | C |
| K 1 | RYNXFM |
| K 2 | RYTXFM |
| K 3 | RBN710 |
| K 4 | RYFXFM |
| K 4-1 | XTS3 + 8 |
| K 4-2 | RYHXFM |
| K 4-3 | RKX334 |
| K 4-4 | RUQK2Z |
| K 4-5 | RJC205E |
| K 4-6 | QBN800 |
| K 5 | RKEK1Y |
| K 6 | RZAXFM |
| K 7 | RUBK1Z |
| K 8 | RBCK11 |
| K 9 | RUQK3Z |
| K 10 | RBCK12 |
| K 11 | RBCK13 |
| K 12 | RUBK2Z |
| K 13 | RUBK3Z |
| K 14 | EAS10P2 |
| K 15 | RKCK1Z |
| K 16 | QYQK01 |
| K 17 | RYMXFM |

**Note:** The color nam

# INET PARTS LOCATION




## REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

| Ref. No. | Part No. | Part Name & Description |
|---|---|---|
| | | **CABINET PARTS** |
| K 1 | **RYNXFM45J** | Battery Cover Ass'y (Black) |
| K 2 | **RYTXFM45J** | Slide Knob Ass'y, Selector, Mode, BAND (Silver) |
| K 3 | **RBN710Z** | Knob, Volume/Tone (Silver) |
| K 4 | **RYFXFM45M** | Rear Cabinet Ass'y (Black) |
| K 4-1 | **XTS3 + 8GFZ** | Screw ⊕3×8, Handle M'tg |
| K 4-2 | **RYHXFM45J** | Handle Ass'y (Black) |
| K 4-3 | **RKX334Z** | Arm, Handle (Silver) |
| K 4-4 | **RUQK2Z** | Spring, Battery (+/−) |
| K 4-5 | **RJC205B** | Terminal, Battery (+) |
| K 4-6 | **QBN8009A** | Terminal, Battery (−) |
| K 5 | **RKEK1Y** | Jack Board (Black) |
| K 6 | **RZAXFM45J** | Dial Chassis Ass'y (Black) |
| K 7 | **RUBK1Z** | Lever, Direction (White) |
| K 8 | **RBCK11Z** | Knob, Direction (Silver) |
| K 9 | **RUQK3Z** | Spring, Direction Knob |
| K 10 | **RBCK12Z** | Knob (A), Reverse Mode (Silver) |
| K 11 | **RBCK13Z** | Knob (B), Reverse Mode (Silver) |
| K 12 | **RUBK2Z** | Lever, Change (White) |
| K 13 | **RUBK3Z** | Lever, Reverse Mode (White) |
| K 14 | **EAS10P241SF** | Speaker |
| K 15 | **RKCK1Z** | Lever, Eject (Black) |
| K 16 | **QYQK0175** | Dumper Gear Ass'y (Black) |
| K 17 | **RYMXFM45M** | Front Cabinet Ass'y/with Tweeter Speaker (Black) |
| K 18 | **RBN709Z** | Knob, Tuning (Silver) |
| K 19 | **RUW3Z** | Spring, Cassette Holder |
| K 20 | **RYGXFM45M** | Cassette Lid Ass'y (Black) |
| K 21 | **RDGK1Z** | Gear, Dram (White) |
| K 23 | **RDPK502Z** | Pointer (White) |
| K 24 | **RDZ05Z** | Dial Rope |
| K 25 | **QBT1320** | Spring, Dram Gear |
| K 26 | **WM034BZ** | Built-in Microphone |
| K 27 | **RDT9147Z** | Tuning Shaft |
| K 28 | **QDP1477** | Dial Roller-A (White) |
| K 29 | **QDP1678** | Dial Roller-B (White) |
| K 30 | **XTN3 + 55GFZ** | Screw ⊕3×55, Rear Cabinet M'tg |
| K 31 | **XTN3 + 12GFZ** | Screw ⊕3×12, Rear Cabinet M'tg |
| K 32 | **XTN3 + 12G** | Screw ⊕3×12, Reverse Mode Lever M'tg |
| K 33 | **XWG3** | Washer 3φ, Reverse Mode Lever M'tg |
| K 34 | **XTV3 + 8G** | Screw ⊕3×8, Dumper Gear M'tg |
| K 35 | **XSN26 + 4** | Screw ⊕2.6×4, Drum Gear M'tg |
| K 36 | **XWG26** | Washer φ2.6, Drum Gear M'tg |
| K 37 | **QJS04001T** | Socket, (4P) |
| K 38 | **XTV3 + 10G** | Screw ⊕3×10, Spaker M'tg |
| K 40 | **XUC3FT** | Stop Ring 3φ |
| K 41 | **QMN8001** | Roller Shaft |
| K 42 | **QJS03001T** | Socket (3P) |
| K 43 | **RUV599Z** | Cover, Rectifier (B) (Black) ⚠ |
| K 44 | **QJP03S005T** | Plug (3P/CP1) |
| K 45 | **QJP04S005T** | Plug (4P/CP2) |
| K 46 | **QJP03S005T** | Plug (3P/CP3) |
| K 47 | **QJT1089** | Contact |
| K 48 | **QJS03001T** | Socket (3P) |
| K 49 | **RMPK2Z** | LED Holder (Black) |
| K 50 | **RHRK501Z** | Microphone Holder (White) |
| K 51 | **RUV482Z** | Cover, Jack (Black) |
| K 52 | **RUV598Z** | Cover, Rectifier (A) (Black) ⚠ |
| K 53 | **XTV3 + 12G** | Screw ⊕3×12, Mechanism, PCB etc. M'tg |
| K 54 | **XTN3 + 50G** | Screw ⊕3×50, Dial Chassis M'tg |
| K 55 | **XEAQCR225DAN** | Telescopic Antenna |
| K 56 | **XSN3 + 12BVS** | Screw ⊕3×12, Antenna M'tg |
| | | **ACCESSORIES** |
| A 1 | **RJA22X** | AC Power Cord ⚠ |
| A 2 | **RQXK4009Z** | Instruction Book |
| | | **PACKINGS** |
| P 1 | **RPKK1027Z** | Gift Box |
| P 2 | **RPNK9002Z** | Cushion, Complete |
| P 3 | **XZB57X30A01** | Protection Cover, UNIT |
| P 4 | **RPEK105Z** | Packing Sheet |
| P 5 | **RPEK111Z** | Pad, Rear Side |
| P 6 | **QPAK1128** | Cushion, Cassette Lid |

**Note:** The color name in parentheses ( ) in the parts list is the color of that part.





KTB A.M M Printed in Japan Ⓗ/Ⓕ